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Turning Toward Place, Space, and Time

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Just as many disciplines rediscovered place and space over the last thirty years, so did they rediscover time and temporal representation. A critical geography and a new historicism have reoriented many humanists and social science disciplines. Like the spatial turn, the temporal turn now grounds the analysis of everything from literature to sociology in new kinds of contexts. The exciting challenge before us now is integrating those new perspectives, taking advantage of what they have to teach us.

The spatial turn began within the discipline of geography itself. By the early 1970s, geographer Edward Soja observes, many people in the field "sought alternative paths to rigorous geographical analysis that were not reducible to pure geometries." In this new critical geography, "rather than being seen only as a physical backdrop, container, or stage to human life, space is more insightfully viewed as a complex social formation, part of a dynamic process." By making this argument, geographers opened their discipline to humanists and social scientists who found congenial both a skepticism toward positivist social science and a focus on the texture of experience.[1]

For non-geographers, the spatial turn has been largely defined by a greater awareness of place, manifested in specific sites where human action takes place. As Karen Halttunen told the members of the American Studies Association in her presidential address, studies of place in the humanities have tended to focus on the particular, the narrative, and the concrete, to show "a strong sense of the constructedness of place, of placemaking as an ongoing and always contested process, and of the creative variety of cultural practices employed for placemaking." In the 1970s and 1980s, Halttunen noted, "spatial analysis tended to the metaphorical, as

we adopted the idiom of borders and boundaries, frontiers and crossroads, centers and margins. In literature, the new regionalism and the booming field of ecocriticism foreground what had been considered mere background or setting."[2]

At the same time the critical geography of place gained momentum, another innovation in geography sped up as well. This geography, based in the rigorous mathematical background of many practitioners in the field, grew from new technological developments, especially Geographic Information Systems (GIS). Not content simply to apply the new tools, however, "geographers became increasingly concerned with the fundamental theoretical issues related to spatial data handling," geographer Daniel Sui points out. "Geographers were no longer intellectually satisfied with mere technical innovations. If GIS had become the answer, many geographers were itching to ask, what was the question?"[3]

Geographers have used cognitive science, computer science, physics, non-Euclidean geometry, neural computing, and fractal geometry to extend their understanding of space, with each new method and conjunction of methods raising new questions. Greater power of analysis brings new questions to the surface. GIS, Sui observes, "has been examined through every critical lens of social theory and poststructuralist perspective, ranging from feminist theories to indigenous knowledge, public participation, hermeneutics, political ecology, actor-network theory, critical media theories, and linguistic philosophies and ethics." Sui believes that "computational, spatial, social, environmental, and aesthetic dimensions" will all flourish as geography moves forward, for geography "is a fertile ground for crossing the traditional boundaries of science, social theory, technology, and the humanities."[4]

The study of place and the study of space, in other words, converge in a heightened self-awareness that is useful for geographers and others as well. "Because of geography's focus on studying subject matter in common with the humanities and sciences or the human and natural sciences, it has sometimes been called the bridging discipline or an interfacing or fusing discipline," geographer Stanley Brunn argues. "That is, it is the discipline most concerned with studying the relationships between the human and physical phenomena." Geographers "are both exporters and importers of knowledge" and thus geography serves as a sturdy bridge crossed by many disciplines.[5]

Another bridging discipline deals with the other defining context in human life: time. That discipline, of course, is history. Maps and history are deeply complementary. "Both reduce the infinitely complex to a finite, manageable, frame of reference," theorist Denis Cosgrove points out. "Both involve the imposition of artificial grids—hours and days, longitude and latitude—on temporal and spatial landscapes, or perhaps I should say timescapes and landscape. Both provide a way of reversing divisibility, of retrieving unity, of recapturing a sense of the whole, even though it can not be the whole." Maps and histories do the same kind of work in different disciplines, in different dimensions of human experience.[6]

History, no less than other disciplines, took its own spatial turn. The turn did not prove a wrenching change of direction for history, because history has always had a strong spatial component. Historians have long relied on maps and have always plotted stories in space as well as time. Geographers and historians have usually seen the other as allies, fellow travelers. That is because, as D. W. Meinig, a pioneering practitioner of both disciplines, argues, "geography, like history and unlike the sciences, is not the study of any particular kind of thing, but a particular way of studying almost anything. Geography is a point of view, a way of looking at things. If one focuses on how all kinds of things exist together spatially, in areas, with a special emphasis on context and coherence, one is working as a geographer." And if we substitute "temporally" for "spatially" in the preceding sentence, and exchange "historian" for "geographer," we are describing history.[7]

History has absorbed place, the more humanistic aspect of the spatial turn, in studies of everything from regions and the environment to consumer culture and slavery. But it has not quite known what to do with the more analytical, technologically enabled component of the new geography. That is in part because history is, at heart, a humanistic discipline rather than a social science. Despite forays into quantification, history tends toward the singular and particular, toward interpretation rather than generalization, toward the narrative rather than the model. Historians, accordingly, have not developed very explicit theories of space or place. Each representation tends to be handmade, custom-built.

Despite the affinities of history and geography, trying to comprehend space, place, and time in concert has always proven difficult. As the historian Hugh Trevor-Roper asked decades ago, "How can one both move

and carry along with one the fermenting depths which are also, at every point, influenced by the pressure of events around them? And how can one possibly do this so that the result is readable? That is the problem."[8] How, in other words, might we combine the obvious strengths of geographic understanding with the focus on the ineffable, the irreducible, the singular, that is at the heart of history? How might we integrate structure, process, and event? How might we combine space, place, and time?

Novelists have figured out ways to represent the concatenation of time and space in human lives. More than seventy years ago the brilliant Russian literary critic Mikhail Bakhtin defined the "chronotope," "the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature." Bakhtin described the magic of the chronotope in beautiful language, even in translation: "In the literary artistic chronotope, spatial and temporal indicators are fused into one carefully thought-out, concrete whole. Time, as it were, thickens, takes on flesh, becomes artistically visible; likewise, space becomes charged and responsive to the movements of time, plot and history." For Bakhtin, "the chronotope is the place where the knots of narrative are tied and untied.... Time becomes, in effect, palpable and visible; the chronotope makes narrative events concrete, makes them take on flesh, causes blood to flow in their veins."[9]

Sometimes historians can create the magical narrative effect Bakhtin describes, the same evocative fusion of place and time in human experience. But they cannot count on that success and, besides, historians have responsibilities beyond narrative. They need not only to evoke time and space, but to explain in more explicit ways the workings of both and the relationship between the two. Since time and space are so closely linked, it may be that the spatial turn can present an opportunity to think about time in new ways as well.

One line of thought, decades now in the making, the product of sociologists, anthropologists, historians, and others, seems to hold out the promise of unifying action in place and time. This tradition of analysis, written in a common spirit but not constituting a unified school, argues that social power can be best perceived in "practice" rather than in categories. These analysts of what has come to be called "practice theory" have taken things apart—dismantling generalizations about cultures, classes, races, and societies, casting aside older Marxian, neoclassical, and struc-

turalist models—and put them back together in more dynamic, interrelated, and complicated ways. They show that the cultural and the material are parts of the same processes and structures, that they cannot be separated. Leading theorists in this vein include Pierre Bourdieu, Anthony Giddens, Marshall Sahlins, Raymond Williams, and Sherry Ortner.

Historians have not been leaders in defining practice theory, but they have recently taken up discussion of the approach. Gabrielle M. Spiegel, synthesizing the literature, argues that practice theory's accent "on the historically generated and always contingent nature of structures of culture returns historiography to its age-old concern with processes, agents, change, and transformation, while demanding the kind of empirically grounded research into the particularities of social and cultural conditions with which historians are by training and tradition most comfortable." William H. Sewell, Jr., another prominent historian, believes that "social life may be conceptualized as being composed of countless happenings or encounters in which persons and groups of persons engage in social action. Their actions are constrained and enabled by the constitutive structures of their societies." As a result, "'societies' or 'social formations' or 'social systems' are continually shaped and reshaped by the creativity and stubbornness of their human creators."[10]

This model bears a striking resemblance to notions of place portrayed after the spatial turn. Like the highly inflected, multifarious representations of space growing out of critical geography, time in practice theory is less a unified field, a background, than an active participant in the story. The sociologist Andrew Abbott describes time as others describe space. Time, for him, is "a series of overlapping presents of various sizes, each organized around a particular location and overlapping across the whole social process." Time is not fixed, not a given. "Within this complex world, change is the normal state of affairs. We do not see a largely stable world that changes occasionally, but a continuously changing world that has macroscopic stabilities emerging throughout it. This world is a world of events." Stability in this eventful world is not the default. As a result, "the fact that everything—no matter how large—is perpetually being reproduced means that everything—no matter how large—is always on the line. So sudden large-scale change is not surprising."[11]

Time, like geography, can be disassembled analytically. Just as we differentiate between a more generalized space and a more localized place,

so can we differentiate general processes from specific events. We live daily in places and events but we are parts of large spaces and processes we can perceive through efforts of disciplined inquiry. Just as a geographer relates place and space, so do historians relate event and process. Geography locates us on a physical and cultural landscape while history locates us in time. Joining the two kinds of analysis in a dynamic and subtle way offers an exciting prospect. Practice theory, a supple way to imagine both structure and activity, may help.

The everyday and the local, a common focus in practice theory, would seem to have at least one great limitation: explaining larger social changes. How do we get from the prosaic to the transformational? In fact, practice theory proves to be a way to explain how big and sudden changes penetrate deeply into people's hearts and minds. "All social life is 'contingent,' implicated and unpredictable, because all parts of life depend on each other," I have argued elsewhere. "What we think of as public and private, economic and political, religious and secular, and military and civilian are deeply connected. Social change can start anywhere and lead anywhere." Such a perspective argues for the intricate interplay of the structural and the ephemeral, the enduring and the emergent. This is "deep contingency," a view of social life that fuses an active sense of place and an active sense of time.[12]

Deep contingency tries to suggest how societies can change their self-understanding quickly and profoundly. Secession in the United States, where states decided in a matter of weeks to join a new Confederacy and sacrifice everything in that new purpose, is one example; others might include the Russian Revolution or the fall of the Berlin Wall. Practice theory addresses these ruptures. As William Sewell argues, "big and ponderous social processes are never entirely immune from being transformed by small alterations in volatile local social processes. . . . Because structures are articulated to other structures, initially localized ruptures always have the potential of bringing about a cascading series of further ruptures that will result in structural transformations—that is, changes in cultural schemas, shifts of resources, and the emergence of new modes of power."[13]

Deep contingency needs to be distinguished from what we might call surface contingency, the familiar historical staples of accident, personality, and timing, the clichés of "what ifs" and "almosts." While surface contingency can sometimes trigger deep contingency, the great majority

of unpredictable events come and go without much consequence; deep contingency, visible only after it has arrived, reverberates throughout the recesses of the social order. "A single, isolated rupture rarely has the effect of transforming structures because standard procedures and sanctions can usually repair the torn fabric of social practice," Sewell argues. "Ruptures spiral into transformative historical events when a sequence of interrelated ruptures disarticulates the previous structural network, makes repair difficult, and makes a novel rearticulation possible."[14]

To understand deep contingency we must try to comprehend a society as a whole, its structures of ideology, culture, and faith as well as its structures of economics and politics. All structures must be put into motion and motion put into structures. As literary scholar Raymond Williams insists, "Determination of this whole kind—a complex and interrelated process of limits and pressures—is in the whole social process itself and nowhere else: not in an abstracted 'mode of production' nor in an abstracted 'psychology.'" Or, as anthropologist Sherry Ortner explains, "A practice approach has no need to break the system into artificial chunks like base and superstructure (and to argue over which determines which), since the analytic effort is not to explain one chunk of the system by referring to another chunk, but rather to explain the system as an integral whole (which is not to say a harmoniously integrated one) by referring it to practice." And, of course, space and time are crucial components of that integral whole.[15]

By its very nature deep contingency depends on larger processes, on interconnected systems. Portrayals of particular places, often apprehended through the finely grained portrayals of a case study, struggle to convey what we might be able to see on a broader canvas. Deep contingency cascades throughout a society, but it has to start somewhere, often in political or economic decisions made in capitals or metropoles. Mapping offers a way to see deep contingency in motion, rippling and sweeping across space and time.

New thinking in geography, history, and theory, combined with new technology and techniques, suggests that we may be able to represent the intersection of space and place, process and event in more compelling ways. Some of this representation, as in fiction, may take place in writing, in new kinds of narratives sensitive to the ways time and place interact and intersect. Other representation may be possible with new technolo-

gies that permit us to integrate various aspects of human experience in more flexible ways.

My colleagues and I at the University of Richmond are working on two related but separate experiments to see how it might be possible to relate geography and history more clearly. Both experiments take advantage of relatively straightforward and inexpensive computing techniques deployed in unusual ways. Both of the experiments marry the techniques of humanists with those of other disciplines, focusing less on causation (claims about which humanists are rightly wary) and more on interpreting the consequences and resonances of events. By laying down grids of space and time and documenting the actions of people across those grids, we are able to see patterns we could not see otherwise.

The first experiment is called the History Engine. The goal of this tool is to capture and convey the richness, the particularity and singularity, of both place and time while allowing us to see larger patterns otherwise invisible. The History Engine is a moderated wiki, populated thus far by hundreds of students at five colleges and universities. The project's Web site describes the technique: "Student participants research primary documents and use secondary sources to help reconstruct the 'episodes'—snippets of daily life from the largest national event to the smallest local occurrence—that make up the cumulative database." Students do the work of historians. They "examine primary documents, place them in a larger historical context using secondary resources, and prepare their analysis for the public eye." The elements in the searchable database undergo "a careful academic screening process on the part of library staff, archivists, professors, and teaching assistants. Because only registered students can contribute, each episode is carefully vetted for content and accuracy." Once approved, the episodes are added to others until the database is populated by thousands of documented nodes where place, time, and action intersect, searchable in several dimensions.[16]

The episodes in the History Engine embody the principles of practice theory. The episodes demonstrate how people enact the dramas of their society in places large and small, confronting common challenges and opportunities, each episode unique and yet part of larger patterns. The History Engine shows that, at base, history is where singular events and larger patterns intersect. One can watch the secession crisis of 1861, for example, move like a wave through the words and experiences of people

scattered across an area the size of continental Europe, the momentum building on itself.

Each episode in the History Engine, moreover, is geocoded so that it can be represented in space as well as in time. A user may start with a map of the United States, showing the density of episodes in each county in each decade, as well as with a search of keywords or dates. Each episode is embedded, in other words, in place and time. The History Engine shows how pattern, structure, event, and change are embodied at the local and personal level, in a collage of moments. It is, as it were, analog, requiring interpretive acts of translation. The History Engine can convey primary documents, images, and multimedia elements as well as episodes and so could serve as a vehicle for deeply layered and textured kinds of interpretive history.

Another way of approaching place and space, event and process, involves pulling the camera back to see larger patterns in motion. This strategy, useful for looking across broader arrays of space and time, draws more on the machine-aided capacities of GIS and other digital tools.

The first model we have built at Richmond focuses on voting. It "examines the evolution of presidential politics in the United States across the span of American history. The project offers a wide spectrum of cinematic visualizations of how Americans voted in the presidential elections at the county level." It presents maps that morph from one election to the next in a fluid movement, representing a series of perspectives: raw voting distributions, political party strength, third-party challenges, highly contested counties, voter turnout rates, demographic changes, and population densities. Built with GIS but using special effects software to create the impression of motion—not unlike weather maps that show fronts, storms, and clear areas—the maps offer a new perspective on American politics.[17]

The cinematic maps are something like time-lapse photography of plants opening, of leaves unfurling in particular shapes, of vines reaching to grasp nearby structures, of diseased or thwarted processes. Or perhaps they could be imagined as models of streams and rivers, with currents folding back on themselves, of flows around submerged objects.

The emergent patterns can not be easily perceived in static maps. It is possible, in fact, that people simply do not have the neural bandwidth to deal with space and time simultaneously, in the same cognitive space, without the tricks of narrative or the aid of machinery. People tend to think

of cause and effect in linear forms because that is how we get through the daily acts of life. We seem able only to tell ourselves one story at a time, to unfold one sequence in our heads at a time. We cannot picture simultaneity or envision complex processes without at least writing things down or, better, drawing pictures, or better yet, creating moving pictures.

My colleague Cindy Bukach, a cognitive neuroscientist, points out that "our perceptual system is not designed to perceive the passage of time, but it is designed to see the movement of objects through space. By converting time to motion, we can visualize the passage of time (as one does as one watches the hands of a clock move). This same principle can operate not only on the scale of seconds, minutes and hours, but also on the scale of years."

Our brains like seeing these patterns, it seems, because maps of time take advantage of our "multimodal cognitive system." Motion and temporal sequencing are key to our constant triangulation of causation. As Bukach points out, "these dynamic patterns can be simultaneous, allowing inferences of common causes, or they can be sequential, suggesting causal relationships. Motion captures attention. Displaying historical information in a motion map guides the viewers' attention to changes in a somewhat automatic way, guiding even the most naïve observer to perceive the relevance of emerging trends and relationships."[18]

A famous experiment showed how crucial time and motion are to human cognition. A researcher "placed lights at the major points of people dressed completely in black and photographed in the dark. If these people did not move, observers reported seeing no identifiable pattern," Donna Peuquet reported. "If, however, the people moved in performing some ordinary activity, such as walking or dancing, the observers immediately were able to identify the appropriate number of people engaged specifically in that activity. If the people then stop moving, the observers reported that the lights returned to a random pattern, with the people seemingly disappearing." The researchers "concluded that the perception of a gestalt pattern of an event progressing in time is basic to human cognition." Our maps try to take advantage of this capacity and desire of the human brain.[19]

Elections are virtually stage sets for dramatizing the force of event and personality on subsequent occurrences and structures. Votes are clear markers of people's beliefs and actions at specific points in time and

space, conducted on a regular and frequent basis. On the cinematic maps, accordingly, one can see the consequences and patterns of secession, Reconstruction, Populism, Progressivism, socialism, disfranchisement, the New Deal, the Dixiecrats, the Voting Rights Act, George Wallace, the Republicans' Southern Strategy, or Ralph Nader.

The patterns, intricate and shifting, are too complex to explain easily in words or even numbers. We can see more in the maps than we can easily say. As Peuquet points out, "the linear (i.e., one dimensional) nature of language is ill-suited to represent the higher dimensionality of a spatial information." Because "the number of terms in natural language for expressing topological spatial and temporal relationships is hard to add to and very limited," we are limited in what we can describe. As Peuquet wryly challenges, "try verbally describing the shape of Canada or the United States."[20]

The maps' complex patterns belie easy generalization in numbers as well as in words. The convenient division between red states and blue states, it becomes obvious, is profoundly misleading. That convention has implications that reach all the way down from the state to the county to the individual voter, with a powerful set of assumptions built in: people vote in ways that tend to be generally static, unreflective, and bundled. Thus, the common nomenclature of red and blue assumes that people who live near one another tend to share political ideas because of their common history, ethnicity, and economic experience. Those identities, the red/blue dichotomy assumes, tend to change slowly.[21]

Dynamic maps show, by contrast, how shifting and complex the patterns of party voting can be. Dissolving the large blocks of the electoral college maps into more precise points reveals that states are often deeply divided. Running the cursor over each county in the United States in the interactive maps shows the extent to which individual counties embodied these divisions. Some maps show the power of state boundaries, as places with the same ethnic patterns and economies vote in quite different ways because of the power of patronage, a popular governor, or scandals. Other maps may show patterns that cross state boundaries, as when counties of Appalachia, north and south, voted against Barack Obama in 2008. The concept of red and blue states, while mattering for the electoral college and therefore of great instrumental meaning, turn out to be poor indicators of the complexities of American voting.

Combined, the movement, manipulability, and specificity of the dynamic maps give us a glimpse of what deep contingency might look like over time. By allowing us to see space and time at a distance, in relatively abstract ways, the maps show us dissolving and crystallizing patterns otherwise invisible in rows of numbers or static maps based on the same data. Running the maps backward and forward show one area of activity after another, revealing new detail in each viewing. Explanatory text and video, contexts moving along with the maps, provide viewers with dynamic frameworks of narrative understanding.

Now that so many disciplines have taken both the spatial turn and the temporal turn, it will be interesting to see where and how far the branching roads may take us. Translating complex patterns into language—essential for the humanities—will be an on-going challenge. Maps or timelines, dynamic or otherwise, do not speak for themselves. Inventing new forms of interpretation and explication will be a thrilling but difficult task. Fortunately, recent history suggests we will rise to the occasion. Geographers, historians, and their allies have come a long way in a short time, crossing many bridges and borders once thought closed.

NOTES

1. Edward Soja, "In Different Spaces: Interpreting the Spatial Organization of Societies," *Proceedings* 3rd International Space Syntax Symposium (Atlanta 2001).

2. Karen Halttunen, "Groundwork: American Studies in Place"—presidential address to the American Studies Association, November 4, 2005, *American Quarterly* (March 2006) 58: 1–15.

3. Daniel Sui, "GIS, Cartography, and the 'Third Culture': Geographic Imaginations in the Computer Age," *The Professional Geographer* (2004) 56:1, 62–72.

4. Ibid. For a helpful reminder that "neither space nor place is simply something that happens out in the world, but rather that both are methods that social analysts apply is setting out to study the world," and that "we do not suppose that place is restricted to small-scale, face-to-face interaction, or space to social networks and macro-level circuits," see Richard Biernacki and Jennifer Jordon, "The Place of Space in the Study of the Social," in P. Joyce, ed., *The Social in Question: New Bearings in History and the Social Sciences* (London and New York: Routledge, 2002), 133–50. Cited here at 144.

5. Stanley Brunn, "The New Worlds of Electronic Geography," *GeoTrópico* (online), (2003) 1 (1): 11–29.

6. Denis Cosgrove, *Mappings* (London, 1999), 32.

7. D. W. Meinig, *A Life of Learning*, Charles Homer Haskin lecture, American Council of Learned Societies occasional paper No. 19 (Philadelphia, 1992), 18.

8. Quoted in Keith Thomas, "A Highly Paradoxical Historian," *New York Review of Books*, April 12, 2007, 56.

9. Mikhail Bakhtin, *The Dialogic Imagination: Four Essays,* ed. Michael Holquist (Austin: University of Texas Press, 1981), 250.

10. Gabrielle M. Spiegel, ed., *Practicing History: New Directions in Historical Riting after the Linguistic Turn* (New York: Routledge, 2005), 23; William H. Sewell, Jr., *Logics of History: Social Theory and Social Transformation* (Chicago: University of Chicago Press, 2005), 100–102, 110–111.

11. Andrew Abbott, *Time Matters: On Theory and Method* (Chicago: University of Chicago Press, 2001), 296–98.

12. Edward L. Ayers, *What Caused the Civil War? Reflections on the South and Southern History* (New York: W.W. Norton, 2005), 134–35.

13. Sewell, *Logics of History,* 227–28.

14. Ibid., 100–102.

15. Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1977), 87–88; Sherry Ortner, "Theory in Anthropology since the Sixties," *Comparative Studies in Society and History* (1984) 26 (1): 148–49.

16. See http://historyengine.richmond.edu/; for the mapping component, which we will be incorporating into the next iteration, see the first version of the project at http://www.vcdh.virginia.edu/SHD/.

17. The current version of the site is at http://americanpast.richmond.edu/voting/.

18. Personal communication from Bukach to Ayers, November 15, 2007.

19. Donna Peuquet, *Representations of Space and Time,* (New York: Guilford Press, 2002), 88.

20. Ibid., 178–80.

21. See Edward Glaeser and Bryce Ward, "Myths and Realities of American Political Geography," January 2006, discussion paper number 2100, http://www.economics.harvard.edu/pub/hier/2006HIER/2100.pdf (accessed October 20, 2009).